**GENETIC ENGINEERING – BIOTECHNOLOGY-ELL**

* Go to <http://biojayo.wikispaces.com/HERE> for the animations needed to answer these questions

**SECTION 1**

* Do the virtual DNA extraction and answer the following question: Write down a brief but complete step by step procedure for extracting DNA out of a human cell. Use a bulleted or numbered list rather than a continuous paragraph.

**SECTION 2**

Perform the virtual electrophoresis lab and answer the following questions:

* How does electrophoresis sort DNA strands?
* How does the DNA travel through the gel?
* Why do different strands travel different lengths within the same period of time?

**RECOMBINANT DNA TECHNOLOGY (GENE SPLICING)**

* Genetic engineering is the manipulation of genes for practical purposes. For example, we use genetic engineering to mass produce human growth hormone and insulin (amongst many other products), to make plants pest resistant and to alter bacteria for cleaning up toxic waste
* Recombinant DNA is formed when scientists combine DNA from two different sources (often different species) to form a single DNA molecule.
* Gene splicing is the “cutting” of DNA segments (with restriction enzymes) so that those segments can be isolated, removed and inserted into different DNA molecules to make recombinant DNA

**SECTION 4**

Read how synthetic insulin (recombinant insulin) is made and write down the steps needed to make it: